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Understanding Our Forests



INSECT EATING PLANTS

on the

Croatan National Forest

NORTH CAROLINA

Understanding Our Forests

The words, "Understanding our Forests," are somewhat presumptuous; no one could claim to know all about such complex communities. Long shelves of large books would still leave us without many answers.

But some insight can be gained by examining small segments of the forest environment, one at a time.

This booklet offers a look at just one unusual part of forest life. Understanding it, along with other equally intriguing small facets of the natural world, may help make your visit to the National Forests more interesting and enjoyable.



The Croatan National Forest on the coast of North Carolina is home to five kinds (genera) of insectivorous plants, a combination rarely seen elsewhere.

By attracting, trapping, and eating insects, these unusual plants supplement their diets, particularly with the essential element nitrogen. They can survive without the insect supplement, but do much better with it, apparently having more vigor and increased flowering. Thus they utilize poor growing sites such as soils that are sandy, very wet, or highly acid.



The five genera found on the Croatan Forest have elaborate mechanisms to capture insects. One has hinged leaves; another has sticky leaves that hold and curl around the victim; one has hollow, tubular leaves containing a liquid into which the prey falls; and one lures its quarry in the water into air-filled bladders. Each is a fascinating study in itself.

PITCHER-PLANTS (*Sarracenia* sp.)

Pitcher-plants are distinguished by erect vase-shaped, tubular leaves, and also by the large, showy flowers that hang face downward from tall stems.





The "pitcher" is a leaf-form that attracts and snares insects. The inside of the hollow tube is lined with hairs that point downward and thus form a barrier to any hapless insect that tries to escape. Fluid in the pitcher drowns the intruder and slowly digests him.



Two species of pitcher-plants grow on the Croatan National Forest: the parrot pitcher-plant (*S. purpurea*) that has red leaves, and the trumpet pitcher-plant (*S. flava*) with yellow-green leaves and bright yellow flowers.

Both species grow in bogs of pine forests in the Coastal Plain. Flowers of the parrot pitcher-plant bloom in April and May, and have a pleasant fragrance. The trumpets bloom from April to September; their flowers have a somewhat disagreeable odor.



ROUND-LEAVED SUNDEW (*Drosera rotundifolia*)

The sundews are named for the "dewdrops" that cover their leaves. The numerous hairs on the leaves are tipped with glands that secrete a glistening, sticky substance which appears as tiny droplets. This material contains an anesthetic that assists in subduing the victim.

A small bug that touches the sticky hairs is held captive. Surrounding hairs bend toward the struggling insect, further enmeshing it. The insect is then slowly digested by juices that ooze from glands in the leaf, allowing the plant to absorb its nourishment directly into the leaf.



The round-leaved sundew is easily identified by its leaves, each one having a circular lobe at the end of a long, thin stalk. The species is widespread in North America. Its whitish flower is borne on a long, slender stalk, from June to September.



BUTTERWORTS (*Pinguicula* sp.)

Leaves of the butterworts have a "buttery" or waxy surface that is sticky enough to catch small insects. The substance that traps the victims also contains an anesthetic that helps overcome them.

The edges of butterwort's leaves curl in upon stuck insects, entombing them. Substances secreted from the leaves digest the insects. Nutrients are then absorbed directly into the leaves.



Leaves are usually yellowish-green and form a rosette at the base of the stem. In several common species, the edges of the leaves curl upward; in others the edges lie flat.

Butterworts grow in moist sites in bogs and pine-lands of the Coastal Plain. Their flowers, blooming in early spring, are borne singly on long, slender stalks. Colors can be blue, yellow, white, violet, or pink. Flowers have a spur on the lower side of the blossom.



VENUS FLY TRAP (*Dionaea muscipula*)

The Croatan has only one species of this distinctive plant. Its leaves look and function like traps. When an insect touches sensitive hair-like structures on the inner surface of the lobes, the hinged leaves close.



Interlocking teeth on the edges of the leaf lobes form a cage that captures the intruder. Glands in the leaves secrete juices that digest the meal.

The venus fly trap is low-growing, but its whitish flower occurs at the end of a fairly tall stalk. It flowers in May and June.

This species grows on moist sandy sites in bogs and pine stands of North Carolina and South Carolina, almost exclusively in the Coastal Plain.



BLADDERWORTS (*Utricularia* sp.)

The bladderworts are mostly aquatic, floating on the surfaces of ponds, lakes, and roadside ditches. They are named for the inflated leaves (bladders) that not only buoy up the plant, but also serve as traps to catch small forms of aquatic life, including the larvae of such insects as mosquitoes.

Floating bladderwort (*Utricularia inflata*) is perhaps the most picturesque; its inflated leaves are arranged like spokes of a wheel. It sails across the water with the breeze, trailing its bladder-laden stolons behind it.



The bladders have unique valves that permit prey to enter, but keep out the water that would destroy buoyancy. The insects or small marine animals thus trapped are digested by secretions from the plant, and by bacterial action.



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Other bladderworts found on the Croatan include the horned bladderwort (*U. juncea*), purple bladderwort (*U. purpurea*), and the two-flowered bladderwort (*U. biflora*).

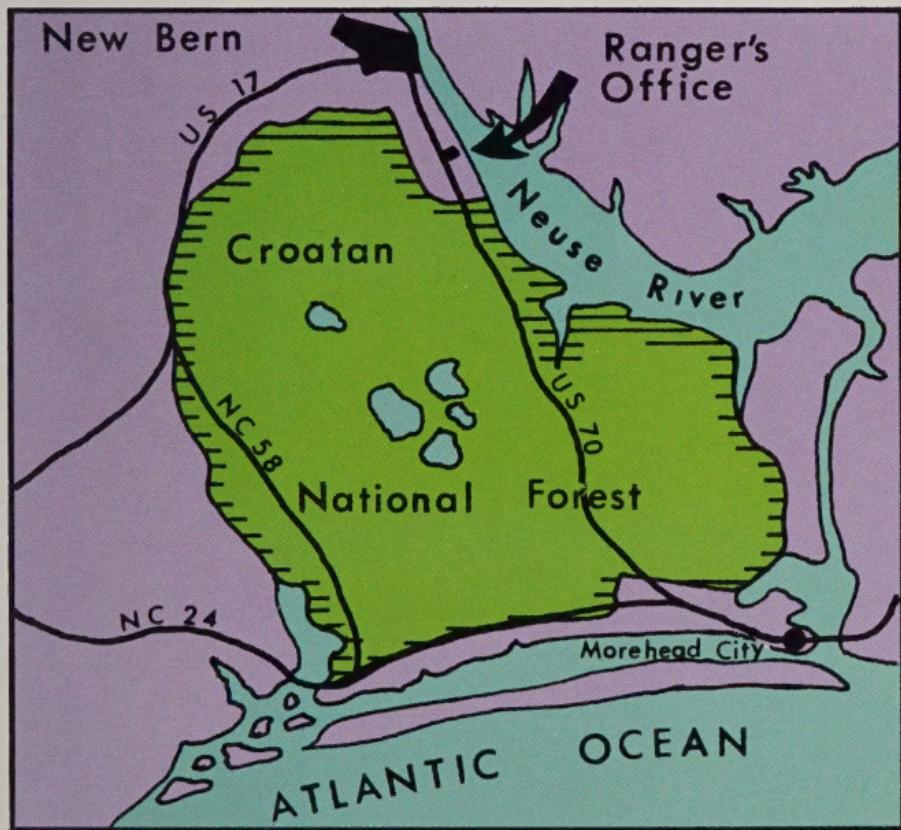


The buoyant bladders of floating bladderwort trap small aquatic animals.

The insect-eating plants of the Croatan National Forest are part of a living community existing in their natural habitat. Observe them, photograph them, but leave them undisturbed for others to enjoy.

Visitors sometimes make the mistake of digging up these plants with the idea of transplanting them back home. Torn from their natural environment, they die in a short time. Visitors who do this not only waste this remarkable form of life, but also violate the law.

Some garden-supply stores sell bulbs of one species described here: the venus fly trap. Raising this species from bulbs offers the only reliable opportunity of having an insectivorous plant of your own.



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The Croatan, like all National Forests, is managed by the Forest Service for balanced yields of wildlife, timber, recreation, and water. All activities related to the management of these resources are done with consideration for protecting and enhancing the environment.

Silvicultural practices such as site preparation and controlled burning may have beneficial effects on many plant communities, including those of the insectivorous plants. Some insect eaters seem to be "fire-followers," and thrive where controlled fires remove competition, release nutrients, and open the site to sunlight.

For additional copies of this brochure, or more information, contact:

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